

California Regional Water Quality Control Board, Los Angeles Region

**San Gabriel River Watershed – Estuary
Trash**

Summary of Proposed Action

The San Gabriel River Estuary is proposed to be listed in the 2002 303(b) water quality assessment as impaired due to non attainment of the narrative objective for floating and settleable materials objective as described in the Basin Plan. The beneficial uses that are affected by this impairment relate to recreational use (contact and non-contact) and aquatic life. The San Gabriel River Estuary is located downstream from Willow Street.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	San Gabriel River Estuary	Pollutants/Stressors	Trash
Hydrologic Unit	405.15	Source(s)	Nonpoint Sources
Total Waterbody Size	41.5 miles	TMDL Priority	Low
Size Affected	2.95 miles	TMDL Start Date (Mo/Yr)	2011
Extent of Impairment	Entire Estuary	TMDL End Date (Mo/Yr)	2013

Watershed Characteristics

The San Gabriel River receives drainage from a large area of eastern Los Angeles County; its headwaters originate in the San Gabriel Mountains. The watershed consists of extensive areas of undisturbed riparian and woodland habitats in its upper reaches. Much of the watershed of the West Fork and East Fork of the river is set aside as a wilderness area; other areas in the upper watershed are subject to heavy recreational use. The upper watershed also contains a series of flood control dams. Further downstream, towards the middle of the watershed, are large spreading grounds utilized for groundwater recharge. The watershed is hydraulically connected to the Los Angeles River through the Whittier Narrows Reservoir (normally only during high storm flows). The lower part of the river flows through a concrete-lined channel in a heavily urbanized portion of the county before becoming a soft bottom channel once again near the ocean in the city of Long Beach. Large electrical power poles line the river along the channeled portion and nurseries, and small stable areas.

Water Quality Objectives Not Attained

The Water Quality Control Plan for the Los Angeles Region (Basin Plan) states that, "Waters shall not contain floating materials, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." In addition, the plan states, "Water shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses." Both of these objectives were not attained in the estuary as indicated by photographic documentation of gross impairment due to trash.

Beneficial Uses Affected

- non-contact water recreation
- water contact recreation
- estuarine habitat
- marine habitat
- wildlife habitat
- rare/endangered species
- migration of aquatic organisms
- spawning, reproduction, and/or early development
- shellfish harvesting

Data Assessment

Photographic evidence of gross impairment of water quality due to trash was provided for several dates in October and November of 2000 and at several locations in the vicinity of the confluence of Coyote Creek with the San Gabriel River Estuary.



Figure 1:
Sample of Photographic Documentation of Gross Impairment due to Trash in the San Gabriel River Estuary

Potential Sources

Stormwater discharge is the major source of trash in the river. The locations from which the photographs were taken included sites near a storm drain. These sites had trash at and adjacent to the drain locations.

References

- Basin Plan, 1994
- Watershed Management Initiative, 2000
- Photographs provided by the Seal Beach Chamber & Business Association, May 2001
- A compilation of Water Quality Goals, August 2000

California Regional Water Quality Control Board, Los Angeles Region

**San Gabriel River Watershed – Reach 1
Nitrite as Nitrogen**

Summary of Proposed Action

Reach 1 of the San Gabriel River is proposed to be listed in the 2002 305(b) water quality assessment as partially supporting due to the median exceeding the water quality objective as described in the Basin Plan. The beneficial use that is affected by this impairment is the potential municipal and domestic supply (MUN) use. [Firestone Boulevard (upstream extent) to the San Gabriel River Estuary (downstream extent) defines Reach 1 of the river.]

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	San Gabriel River R1	Pollutants/Stressors	Nitrite as Nitrogen
Hydrologic Unit	405.15	Source(s)	Point Sources
Total Waterbody Size	41.5 miles	TMDL Priority	Analytical Unit 37
Size Affected	8.73 miles	TMDL Start Date (Mo/Yr)	2001
Extent of Impairment	Entire Reach	TMDL End Date (Mo/Yr)	2003

Watershed Characteristics

The San Gabriel River receives drainage from a large area of eastern Los Angeles County; its headwaters originate in the San Gabriel Mountains. The watershed consists of extensive areas of undisturbed riparian and woodland habitats in its upper reaches. Much of the watershed of the West Fork and East Fork of the river is set aside as a wilderness area; other areas in the upper watershed are subject to heavy recreational use. The upper watershed also contains a series of flood control dams. Further downstream, towards the middle of the watershed, are large spreading grounds utilized for groundwater recharge. The watershed is hydraulically connected to the Los Angeles River through the Whittier Narrows Reservoir (normally only during high storm flows). The lower part of the river flows through a concrete-lined channel in a heavily urbanized portion of the county before becoming a soft bottom channel once again near the ocean in the city of Long Beach. Large electrical power poles line the river along the channeled portion and nurseries, and small stable areas.

Water Quality Objectives Not Attained

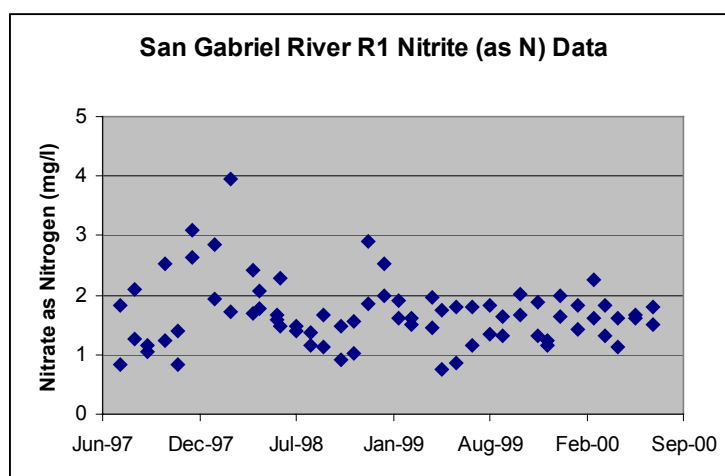
The Water Quality Control Plan for the Los Angeles Region (Basin Plan) states, "waters shall not exceed...1 mg/l as nitrite-nitrogen (NO₂-N)." This criterion range was exceeded in 93% of the water quality samples.

Beneficial Uses Affected

- Municipal and Domestic Supply

Data Assessment

Summary for Nitrite as Nitrogen Data



	Nitrite as nitrogen (mg/L)
Dates of Sampling	7/8/97- 7/11/00
Number of Samples (n)	74
Minimum Data Value	0.76
Maximum Data Value	3.96
Median Data Value	1.63
Arithmetic Mean Value	1.98
Standard Deviation	0.55
Percent above Objective	93 %

Potential Sources

The sampling locations for the nitrite as nitrogen data were the NPDES receiving water stations monitored by the San Jose Creek Waste Water Reclamation Plant (WWRP) and the Los Coyotes WWRP. Storm water monitoring data was not available for this stream reach, so Reach 2 storm water data was reviewed. The mean nitrite as nitrogen concentration, during storm events in Reach 2, was 0.5 mg/l; the range was 0.092 to 1.2 mg/l. Three samples taken upstream of the two WWRP in Reach 2 at station RA have a mean of 0.29 mg/l. On the other hand, the mean concentration of samples taken within Reach 1 and downstream of the WWRPs at stations R2 and R4 was 1.63 mg/l. Based on the data reviewed, the likely sources of elevated nitrite as nitrogen in the river are the WWRPs.

References

- Basin Plan, 1994
- Watershed Management Initiative, 2000

California Regional Water Quality Control Board, Los Angeles Region

**San Gabriel River Watershed – Coyote Creek
Total Selenium**

Summary of Proposed Action

Coyote Creek, a tributary of the San Gabriel River, is proposed to be listed in the 2002 305(b) water quality assessment as not supporting (impaired) due to greater than one exceedance of the total selenium chronic water quality criterion for protection of fresh water aquatic life. The beneficial uses that are affected by this impairment relate to aquatic life use support and include warm freshwater habitat, wildlife habitat, and rare/endangered species habitat.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Coyote Creek	Pollutants/Stressors	Total Selenium
Hydrologic Unit	405.15	Source(s)	Nonpoint Sources
Total Waterbody Size	13.5	TMDL Priority	TMDL Analytical Unit 39
Size Affected	13.5 miles	TMDL Start Date (Mo/Yr)	2004
Extent of Impairment	Entire Reach	TMDL End Date (Mo/Yr)	2006

Watershed Characteristics

The San Gabriel River receives drainage from a large area of eastern Los Angeles County; its headwaters originate in the San Gabriel Mountains. The watershed consists of extensive areas of undisturbed riparian and woodland habitats in its upper reaches. Much of the watershed of the West Fork and East Fork of the river is set aside as a wilderness area; other areas in the upper watershed are subject to heavy recreational use. The upper watershed also contains a series of flood control dams. Further downstream, towards the middle of the watershed, are large spreading grounds utilized for groundwater recharge. The watershed is hydraulically connected to the Los Angeles River through the Whittier Narrows Reservoir (normally only during high storm flows). The lower part of the river flows through a concrete-lined channel in a heavily urbanized portion of the county before becoming a soft bottom channel once again near the ocean in the city of Long Beach. Large electrical power poles line the river along the channeled portion and nurseries, and small stable areas.

Water Quality Objectives Not Attained

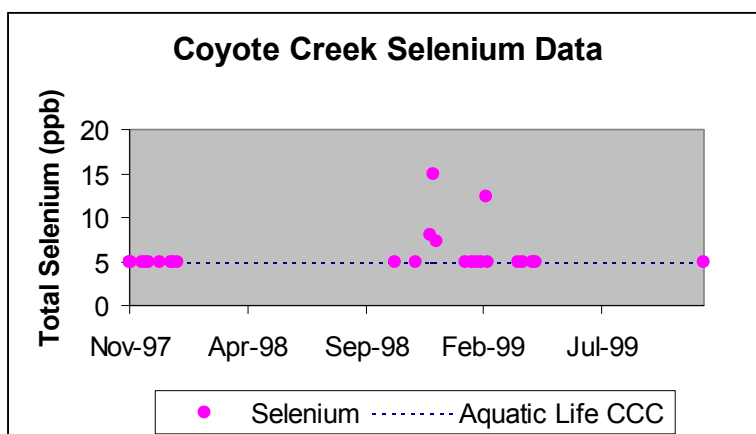
Through the California Toxic Rule, the United States Environmental Protection Agency promulgated water quality criteria to protect fresh water aquatic life. The recommended Criteria Continuous Concentration for total selenium is 5 µg/l. This criterion range was exceeded in 19% of the sampling events.

Beneficial Uses Affected

- warm freshwater habitat
- wildlife habitat
- rare/endangered species habitat

Data Assessment

The chart below shows that during the 1998-1999 monitoring year the concentration of total selenium was exceeded during five monitoring events. The data analyzed in the charts was collected from a storm water monitoring program. During 1999-2000 monitoring year, the selenium concentrations in the storm water samples were below the 5.0 µg/l limit.



Summary Table for Total Selenium

	Total Selenium (µg/l)
Dates of Sampling	11/10/97- 11/10/99
Number of Samples (n)	26
Minimum Data Value	5
Maximum Data Value	14.9
Median Data Value	5
Arithmetic Mean Value	5.86
Standard Deviation	2.42
Percent above CCC	19

Potential Sources

The sampling location for the total selenium data was the mass loading station (S13) monitored by the Los Angeles County Department of Public Works Storm Water Monitoring Program. Therefore, it is assumed that the total selenium loading occurs during wet weather storm events.

References

- Basin Plan, 1994
- Watershed Management Initiative, 2000
- Los Angeles County 1994-2000 Integrated Receiving Water Impacts Report, July 2000
- California Toxics Rule, August 2000

California Regional Water Quality Control Board, Los Angeles Region

**San Gabriel River Watershed – Coyote Creek
Dissolved Copper**

Summary of Proposed Action

Coyote Creek, a tributary of the San Gabriel River, is proposed to be listed in the 2002 305(b) water quality assessment as not supporting due to greater than 10 percent exceedance of the dissolved copper chronic water quality criterion for protection of fresh water aquatic life. The beneficial uses that are affected by this impairment relate to aquatic life use support and include warm freshwater habitat, wildlife habitat, and rare/endangered species habitat.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Coyote Creek	Pollutants/Stressors	Dissolved Copper
Hydrologic Unit	405.15	Source(s)	Nonpoint Sources
Total Waterbody Size	13.5	TMDL Priority	TMDL Analytical Unit 39
Size Affected	13.5 miles	TMDL Start Date (Mo/Yr)	2004
Extent of Impairment	Entire Reach	TMDL End Date (Mo/Yr)	2006

Watershed Characteristics

The San Gabriel River receives drainage from a large area of eastern Los Angeles County; its headwaters originate in the San Gabriel Mountains. The watershed consists of extensive areas of undisturbed riparian and woodland habitats in its upper reaches. Much of the watershed of the West Fork and East Fork of the river is set aside as a wilderness area; other areas in the upper watershed are subject to heavy recreational use. The upper watershed also contains a series of flood control dams. Further downstream, towards the middle of the watershed, are large spreading grounds utilized for groundwater recharge. The watershed is hydraulically connected to the Los Angeles River through the Whittier Narrows Reservoir (normally only during high storm flows). The lower part of the river flows through a concrete-lined channel in a heavily urbanized portion of the county before becoming a soft bottom channel once again near the ocean in the city of Long Beach. Large electrical power poles line the river along the channeled portion and nurseries, and small stable areas.

Water Quality Objectives Not Attained

Though the California Toxic Rule, the United States Environmental Protection Agency promulgated water quality criteria to protect of fresh water aquatic life. The recommended Criteria Continuous Concentration for dissolved copper is dependent on the water hardness value. After considering the event specific hardness values, the range of acceptable concentrations was determined to be 5 - 30 µg/l. This criterion range was exceeded in 62% of the sampling events.

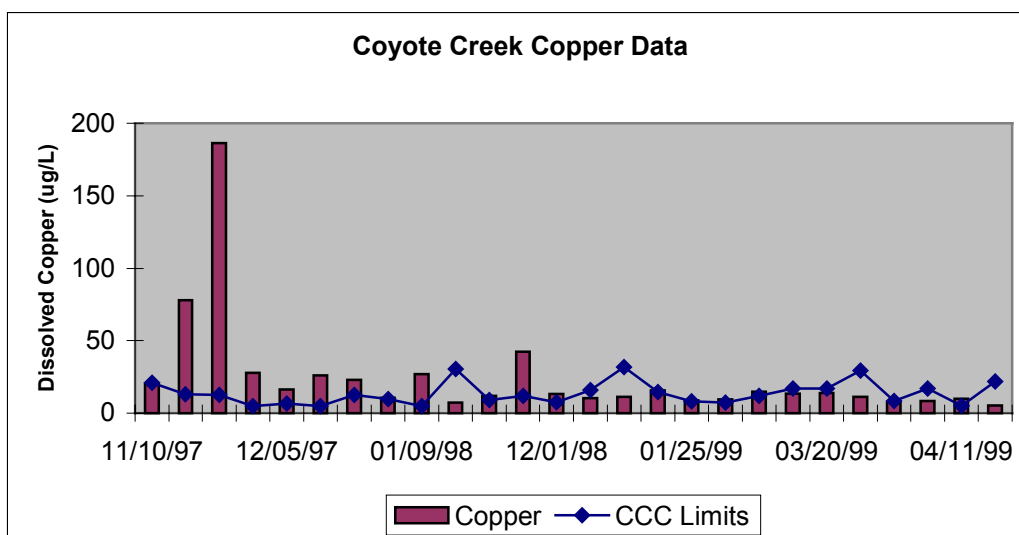
Beneficial Uses Affected

- warm freshwater habitat
- wildlife habitat
- rare/endangered species habitat

Data Assessment

In order to determine the concentration of dissolved copper that will actually be available in an aquatic environment, the water hardness must be considered. The limits calculated and presented in the chart and table below as "Limits" have had hardness values factored in to the dissolved copper concentration. In generally, the lower the hardness values the higher the dissolved copper limit.

The chart below shows a distinct trend in the concentration of dissolved copper. The data analyzed in the charts was collected from a storm water monitoring programs. During the November and December 1997 storm events the concentration of dissolved copper shows increasing trends, and then decreases and stabilizes during the remaining events. This trend associated with an opposing trend in hardness over the same period of time; which decreases and then increases and stabilizes. The trends in hardness and dissolved copper will need to be investigated further during the next two years. Possible explanations may be related to the dilutions by increased rainfall discharge volumes, during the El Nino storms of late 1997, or related to a change in groundwater recharge and spreading volumes.



Summary Table of Dissolved Copper Data (with hardness factor)

	Dissolved Copper (µg/l)
Dates of Sampling	11/10/97- 11/10/00
Number of Samples (n)	27
Minimum Data Value	5.23
Maximum Data Value	186
Median Data Value	13.61
Arithmetic Mean Value	24.31
Standard Deviation	32.18
Percent above CCC	62%

Potential Sources

The sampling location for the dissolved copper data was the mass loading station (S13) monitored by the Los Angeles County Department of Public Works Storm Water Monitoring Program. Therefore, it is assumed that the dissolved copper loading occurs during wet weather storm events. According to their land use and critical source runoff quality results, the LACDPW did identify the possible sources of dissolved metals loading as light industrial, transportation, and retail/commercial land uses. According to LACDPW, the critical sources that fall into these land use categories are auto repair, motor freight transportation, and auto dealership.

References

- Basin Plan, 1994
- Watershed Management Initiative, 2000
- Los Angeles County 1994-2000 Integrated Receiving Water Impacts Report, July 2000
- California Toxics Rule, August 2000

California Regional Water Quality Control Board, Los Angeles Region

**San Gabriel River Watershed – Coyote Creek
Dissolved Zinc**

Summary of Proposed Action

Coyote Creek, a tributary of the San Gabriel River, is proposed to be listed in the 2002 305(b) water quality assessment as not supporting due to greater than 10 percent exceedance of the dissolved zinc chronic water criteria quality for protection of fresh water aquatic life. The beneficial uses that are affected by this impairment relate to aquatic life use support and include warm freshwater habitat, wildlife habitat, and rare/endangered species habitat.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Coyote Creek	Pollutants/Stressors	Dissolved Zinc
Hydrologic Unit	405.15	Source(s)	Nonpoint Sources
Total Waterbody Size	13.45 miles	TMDL Priority	Analytical Unit 39
Size Affected	13.45 miles	TMDL Start Date (Mo/Yr)	2004
Extent of Impairment	Entire Reach	TMDL End Date (Mo/Yr)	2006

Watershed Characteristics

The San Gabriel River receives drainage from a large area of eastern Los Angeles County; its headwaters originate in the San Gabriel Mountains. The watershed consists of extensive areas of undisturbed riparian and woodland habitats in its upper reaches. Much of the watershed of the West Fork and East Fork of the river is set aside as a wilderness area; other areas in the upper watershed are subject to heavy recreational use. The upper watershed also contains a series of flood control dams. Further downstream, towards the middle of the watershed, are large spreading grounds utilized for groundwater recharge. The watershed is hydraulically connected to the Los Angeles River through the Whittier Narrows Reservoir (normally only during high storm flows). The lower part of the river flows through a concrete-lined channel in a heavily urbanized portion of the county before becoming a soft bottom channel once again near the ocean in the city of Long Beach. Large electrical power poles line the river along the channeled portion and nurseries, and small stable areas.

Water Quality Objectives Not Attained

Though the California Toxic Rule, the United States Environmental Protection Agency promulgated water quality criteria to protect of fresh water aquatic life. The recommended Criteria Continuous Concentration for dissolved zinc is dependent on the water hardness value. After considering the event specific hardness values, the range of acceptable concentrations was determined to be 67 - 414 µg/l. This criterion range was exceeded in 22% of the sampling events.

Beneficial Uses Affected

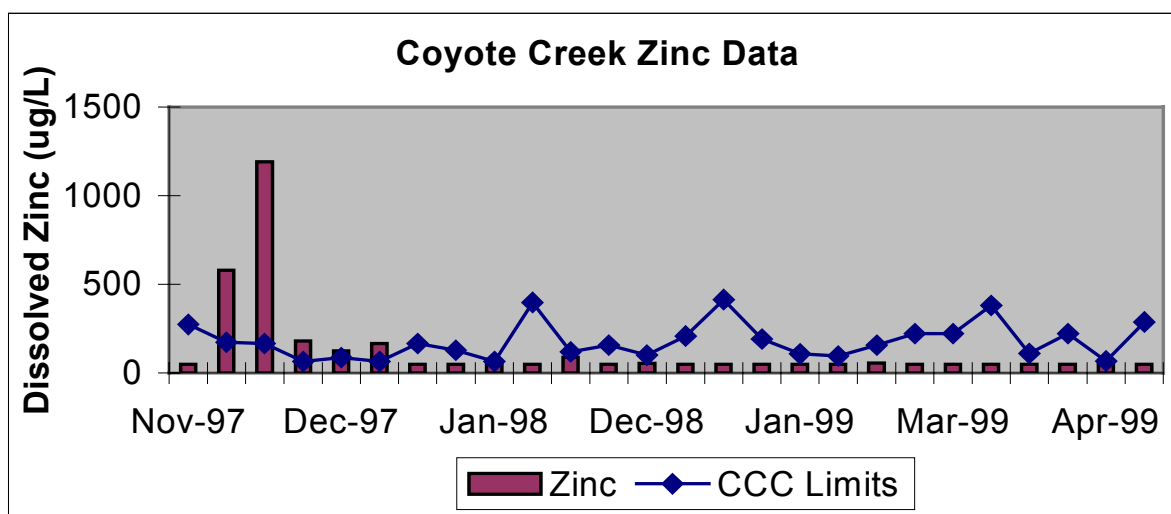
- warm freshwater habitat
- wildlife habitat

- rare/endangered species habitat

Data Assessment

In order to determine the concentration of dissolved zinc that will actually be available in an aquatic environment, the water hardness must be considered. The limits calculated and presented in the chart and table below as "Limits" have had hardness values factored in to the dissolved zinc concentration. In generally, the lower the hardness values the higher the dissolved cooper limit.

The chart below shows a distinct trend in the concentration of dissolved zinc. The data analyzed in the charts was collected from a storm water monitoring programs. During the November and December 1997 storm events the concentration of dissolved zinc shows increasing trends, and then decreases and stabilizes during the remaining events. This trend associated with an opposing trend in hardness over the same period of time; which decreases and then increases and stabilizes. The trends in hardness and dissolved zinc will need to be investigated further during the next two years. Possible explanations may be related to the dilutions by increased rainfall discharge volumes, during the El Nino storms of late 1997, or related to a change in groundwater recharge and spreading volumes.



Summary Table for Dissolved Zinc Data (with hardness factor)

	Dissolved Zinc CCC (µg/l)
Dates of Sampling	11/7/97- 11/10/00
Number of Samples (n)	27
Minimum Data Value	50
Maximum Data Value	810
Median Data Value	79
Arithmetic Mean Value	172.11
Standard Deviation	186.61
Percent above CCC	22 %

Potential Sources

The sampling location for the dissolved zinc data was the mass loading station (S14) monitored by the Los Angeles County Department of Public Works Storm Water Monitoring Program. Therefore, it is assumed that the dissolved zinc loading occurs during wet weather storm events. According to their land use and critical source runoff quality results, the LACDPW did identify possible sources of dissolved metals loading as light industrial, transportation,

and retail/commercial land uses. According to LACDPW, the critical sources that fall into these land use categories are auto repair, motor freight transportation, and auto dealership.

References

- Basin Plan, 1994
- Watershed Management Initiative, 2000
- Los Angeles County 1994-2000 Integrated Receiving Water Impacts Report, July 2000
- California Toxics Rule, 2000

California Regional Water Quality Control Board, Los Angeles Region

**San Gabriel River Watershed – Reach 2
Dissolved Copper**

Summary of Proposed Action

Reach 2 of the San Gabriel River is proposed to be listed in the 2002 305(b) water quality assessment as not supporting (impaired) due to greater than 10 percent exceedance of the dissolved copper chronic water quality criteria for protection of fresh water aquatic life. The beneficial uses that are affected by this impairment relate to aquatic life use support include warm freshwater habitat, wildlife habitat, and rare/endangered species habitat. [Ramona Boulevard (upstream extent) to Firestone Boulevard (downstream extent) defines Reach 2 of the river

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	San Gabriel River R2	Pollutants/Stressors	Dissolved Copper
Hydrologic Unit	405.15	Source(s)	Nonpoint Sources
Total Waterbody Size	41.5 miles	TMDL Priority	Analytical Unit 39
Size Affected	9.9 miles	TMDL Start Date (Mo/Yr)	2004
Extent of Impairment	Entire Reach	TMDL End Date (Mo/Yr)	2006

Watershed Characteristics

The San Gabriel River receives drainage from a large area of eastern Los Angeles County; its headwaters originate in the San Gabriel Mountains. The watershed consists of extensive areas of undisturbed riparian and woodland habitats in its upper reaches. Much of the watershed of the West Fork and East Fork of the river is set aside as a wilderness area; other areas in the upper watershed are subject to heavy recreational use. The upper watershed also contains a series of flood control dams. Further downstream, towards the middle of the watershed, are large spreading grounds utilized for groundwater recharge. The watershed is hydraulically connected to the Los Angeles River through the Whittier Narrows Reservoir (normally only during high storm flows). The lower part of the river flows through a concrete-lined channel in a heavily urbanized portion of the county before becoming a soft bottom channel once again near the ocean in the city of Long Beach. Large electrical power poles line the river along the channeled portion and nurseries, and small stable areas.

Water Quality Objectives Not Attained

Though the California Toxic Rule, the United States Environmental Protection Agency promulgated water quality criteria to protect of fresh water aquatic life. The recommended Criteria Continuous Concentration for dissolved copper is dependent on the water hardness value. After considering the event specific hardness values, the range of acceptable concentrations was determined to be 0.17 - 28 µg/l. This criterion range was exceeded in 62% of the sampling events.

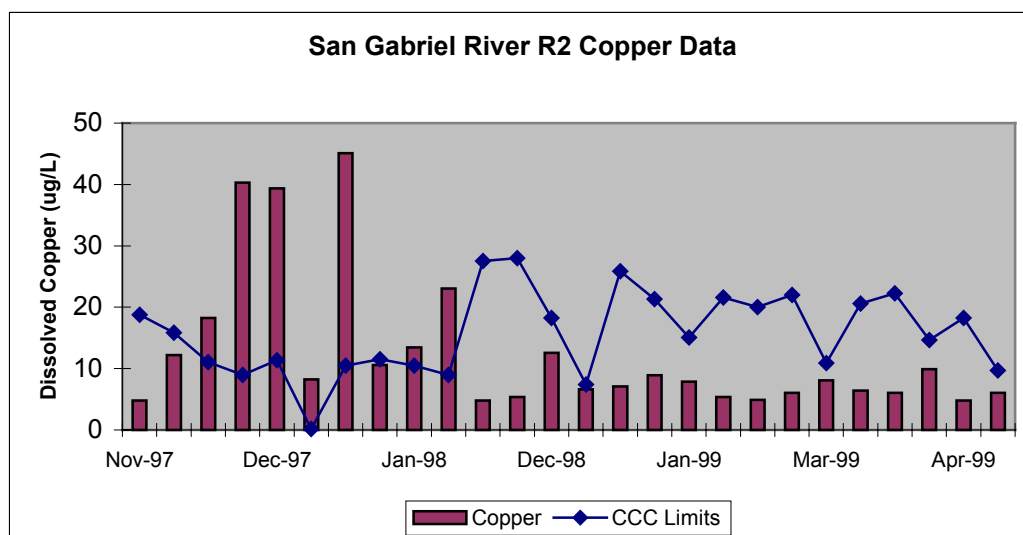
Beneficial Uses Affected

- warm freshwater habitat
- wildlife habitat
- rare/endangered species

Data Assessment

In order to determine the concentration of dissolved copper that will actually be available in an aquatic environment, the water hardness must be considered. The limits calculated and presented in the chart and table below as "Limits" have had hardness values factored in to the dissolved copper concentration. In generally, the lower the hardness values the higher the dissolved copper limit.

The chart below shows a distinct trend in the concentration of dissolved copper. The data analyzed in the charts was collected from a storm water monitoring programs. During the November and December 1997 storm events the concentration of dissolved copper shows increasing trends, and then decreases and stabilizes during the remaining events. This trend associated with an opposing trend in hardness over the same period of time; which decreases and then increases and stabilizes. The trends in hardness and dissolved copper will need to be investigated further during the next two years. Possible explanations may be related to the dilutions by increased rainfall discharge volumes, during the El Nino storms of late 1997, or related to a change in groundwater recharge and spreading volumes. Recent data is below criteria, if this trend continues copper would be reviewed in the next listing cycle.



Summary Table of Dissolved Copper Data (with hardness factor)

	Dissolved Copper (µg/l)
Dates of Sampling	8/7/97- 8/3/00
Number of Samples (n)	30
Minimum Data Value	0.01
Maximum Data Value	47
Median Data Value	8.3
Arithmetic Mean Value	12.99
Standard Deviation	12.15
Percent above Objective	23%

Potential Sources

The sampling location for the dissolved copper data was the mass loading station (S14) monitored by the Los Angeles County Department of Public Works Storm Water Monitoring Program, and the NPDES receiving water station (R-A) monitored by the Whittier Narrows WWRP. The two data points from the Whittier Narrows Station R-A were less than 10 µg/l, and thus do not appear to be a source of the dissolved copper. Therefore, it is assumed that the dissolved copper loading occurs during wet weather storm events. According to their land use and critical source runoff quality results, the LACDPW identified the possible sources of dissolved metals loading as light industrial, transportation, and retail/commercial land uses. According to LACDPW, the critical sources that fall into these land use categories are auto repair, motor freight transportation, and auto dealership.

References

- Basin Plan, 1994
- Watershed Management Initiative, 2000
- Los Angeles County 1994-2000 Integrated Receiving Water Impacts Report, July 2000
- California Toxics Rule, 2000

California Regional Water Quality Control Board, Los Angeles Region

**San Gabriel River Watershed – Reach 2
Dissolved Zinc**

Summary of Proposed Action

Reach 2 of the San Gabriel River is proposed to be listed in the 2002 305(b) water quality assessment as impaired due to greater than 10 percent exceedance of the dissolved zinc recommended water criteria for protection of fresh water aquatic life. The beneficial uses that are affected by this impairment relate to aquatic life use support include warm freshwater habitat, wildlife habitat, and rare/endangered species habitat.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	San Gabriel River R2	Pollutants/Stressors	Dissolved Zinc
Hydrologic Unit	405.15	Source(s)	Nonpoint Sources
Total Waterbody Size	6.0 miles	TMDL Priority	Analytical Unit 39
Size Affected	6.0 miles	TMDL Start Date (Mo/Yr)	2004
Extent of Impairment	Entire Reach	TMDL End Date (Mo/Yr)	2006

Watershed Characteristics

The San Gabriel River receives drainage from a large area of eastern Los Angeles County; its headwaters originate in the San Gabriel Mountains. The watershed consists of extensive areas of undisturbed riparian and woodland habitats in its upper reaches. Much of the watershed of the West Fork and East Fork of the river is set aside as a wilderness area; other areas in the upper watershed are subject to heavy recreational use. The upper watershed also contains a series of flood control dams. Further downstream, towards the middle of the watershed, are large spreading grounds utilized for groundwater recharge. The watershed is hydraulically connected to the Los Angeles River through the Whittier Narrows Reservoir (normally only during high storm flows). The lower part of the river flows through a concrete-lined channel in a heavily urbanized portion of the county before becoming a soft bottom channel once again near the ocean in the city of Long Beach. Large electrical power poles line the river along the channeled portion and nurseries, and small stable areas.

Water Quality Objectives No Attained

Though the California Toxic Rule, the United States Environmental Protection Agency promulgated water quality criteria to protect of fresh water aquatic life. The recommended Criteria Continuous Concentration for dissolved copper is dependent on the water hardness value. After considering the event specific hardness values, the range of acceptable concentrations was determined to be 2.38 - 266 µg/l. This criterion range was exceeded in 13% of the sampling events

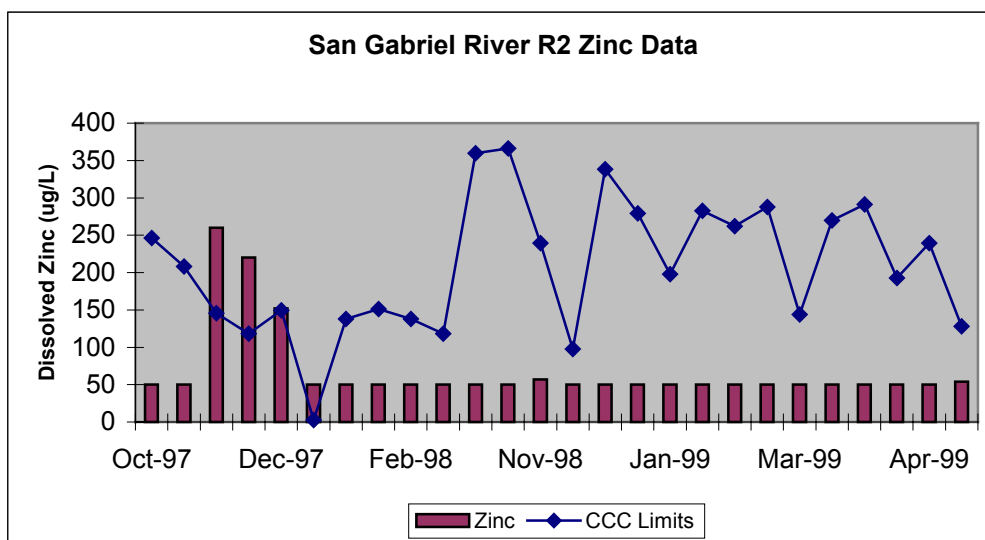
Beneficial Uses Affected

- warm freshwater habitat
- wildlife habitat
- rare/endangered species

Data Assessment

In order to determine the concentration of dissolved zinc that will actually be available in an aquatic environment, the water hardness must be considered. The limits calculated and presented in the chart and table below as "Limits" have had hardness values factored in to the dissolved zinc concentration. In generally, the lower the hardness values the higher the dissolved copper limit.

The chart below shows a distinct trend in the concentration of dissolved zinc. The data analyzed in the charts was collected from a storm water monitoring programs. During the November and December 1997 storm events the concentration of dissolved zinc shows increasing trends, and then decreases and stabilizes during the remaining events. This trend associated with an opposing trend in hardness over the same period of time; which decreases and then increases and stabilizes. The trends in hardness and dissolved zinc will need to be investigated further during the next two years. Possible explanations may be related to the dilutions by increased rainfall discharge volumes, during the El Nino storms of late 1997, or related to a change in groundwater recharge and spreading volumes. Recent data is below criteria, if this trend continues copper would be reviewed in the next listing cycle.



Summary Table for Dissolved Zinc Data (with hardness factor)

	Dissolved Zinc CCC (µg/l)
Dates of Sampling	8/7/97- 8/3/00
Number of Samples (n)	28
Minimum Data Value	50
Maximum Data Value	260
Median Data Value	50
Arithmetic Mean Value	75.04
Standard Deviation	58.81
Number (Percent) above Objective	13 %

Potential Sources

The sampling location for the dissolved zinc data was the mass loading station (S14) monitored by the Los Angeles County Department of Public Works Storm Water Monitoring Program, and the NPDES receiving water station (R-A) monitored by the Whittier Narrows WWRP. The two data points from the Whittier Narrows were less than 10 µg/l, and thus do not appear to be a source of the dissolved zinc. Therefore, it is assumed that the dissolved zinc loading occurs during wet weather storm events. According to their land use and critical source runoff quality results, the LACDPW identified the possible sources of dissolved metals loading as light industrial, transportation, and retail/commercial land uses. According to LACDPW, the critical sources that fall into these land use categories are auto repair, motor freight transportation, and auto dealership.

References

- Basin Plan, 1994
- Watershed Management Initiative, 2000
- Los Angeles County 1994-2000 Integrated Receiving Water Impacts Report, July 2000
- California Toxics Rule, 2000

California Regional Water Quality Control Board, Los Angeles Region

**San Gabriel River Watershed – Estuary
Ammonia as Nitrogen**

Summary of Proposed Action

The San Gabriel River Estuary is proposed to be listed in the 2002 305(b) water quality assessment as "Not Supporting" (Impaired) due to non attainment of the ammonia aquatic life chronic criteria as described in the Basin Plan. The beneficial uses that are affected by this impairment relate to aquatic life. The San Gabriel River Estuary is located downstream from Willow Street.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	San Gabriel River Estuary	Pollutants/Stressors	Ammonia as Nitrogen
Hydrologic Unit	405.15	Source(s)	Point Sources
Total Waterbody Size	41.5 miles	TMDL Priority	37
Size Affected	2.95 miles	TMDL Start Date (Mo/Yr)	2001
Extent of Impairment	Entire Estuary	TMDL End Date (Mo/Yr)	2003

Watershed Characteristics

The San Gabriel River receives drainage from a large area of eastern Los Angeles County; its headwaters originate in the San Gabriel Mountains. The watershed consists of extensive areas of undisturbed riparian and woodland habitats in its upper reaches. Much of the watershed of the West Fork and East Fork of the river is set aside as a wilderness area; other areas in the upper watershed are subject to heavy recreational use. The upper watershed also contains a series of flood control dams. Further downstream, towards the middle of the watershed, are large spreading grounds utilized for groundwater recharge. The watershed is hydraulically connected to the Los Angeles River through the Whittier Narrows Reservoir (normally only during high storm flows). The lower part of the river flows through a concrete-lined channel in a heavily urbanized portion of the county before becoming a soft bottom channel once again near the ocean in the city of Long Beach.

Water Quality Objectives Not Attained

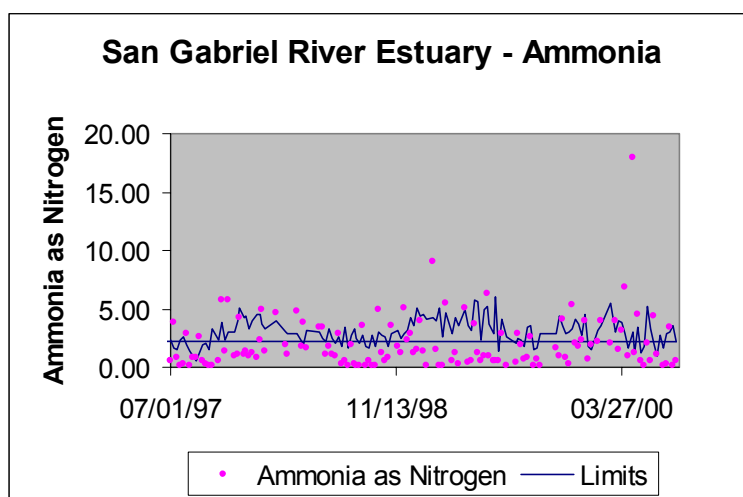
Though the California Toxic Rule, the United States Environmental Protection Agency promulgated water quality criteria to protect of fresh water aquatic life. The recommended Criteria Continuous Concentration (CCC) and Maximum Concentration (MC) for total ammonia nitrogen is dependent on pH and temperature of the water samples. After considering the event specific temperature and hardness values, the criterion ranges were exceeded in 29% of the sampling events for the CCC assessment and 2% for the MC assessment.

Beneficial Uses Affected

- estuarine habitat
- marine habitat
- wildlife habitat
- rare/endangered species
- spawning, reproduction, and/or early development

Data Assessment

The data reviewed for the assessment was collected by the County Sanitation Districts of Los Angeles County as part of the receiving water monitoring program for the San Jose Creek Water Reclamation plant.



Summary Table of Ammonia Nitrogen Data

	Ammonia-N (µg/l)
Dates of Sampling	11/10/97- 11/10/00
Number of Samples (n)	117
Minimum Data Value	0.1
Maximum Data Value	88.3
Median Data Value	1.9
Arithmetic Mean Value	3.5
Standard Deviation	5.69
Percent above CCC	29

Potential Sources

There are point sources discharges (POTWs) upstream of the estuary in addition to nonpoint source discharge from urban runoff. The data collected was primarily from dry weather sampling events. No stormwater data was available for the assessment, thus Board staff was unable to assess the concentrations which occurs during storms.

References

- Basin Plan, 1994
- California Toxics Rule, August 2000
- Watershed Management Initiative, 2000
- A compilation of Water Quality Goals, August 2000

**San Gabriel River Watershed – San Jose Creek
pH (high)**

Summary of Proposed Action

San Jose Creek, a tributary of the San Gabriel River is proposed to be listed in the 2002 305(b) water quality assessment as "Not Supporting" (Impaired) due to exceedances of pH of above than 8.5, which violates the Basin Plan water quality objective for pH.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	San Jose Creek	Pollutants/Stressors	pH
Hydrologic Unit	405.15	Source(s)	Point and Nonpoint Sources
Total Waterbody Size	41.5 miles	TMDL Priority	37
Size Affected		TMDL Start Date (Mo/Yr)	2001
Extent of Impairment	Reach 1 and 2	TMDL End Date (Mo/Yr)	2003

Watershed Characteristics

The San Gabriel River receives drainage from a large area of eastern Los Angeles County; its headwaters originate in the San Gabriel Mountains. The watershed consists of extensive areas of undisturbed riparian and woodland habitats in its upper reaches. Much of the watershed of the West Fork and East Fork of the river is set aside as a wilderness area; other areas in the upper watershed are subject to heavy recreational use. The upper watershed also contains a series of flood control dams. Further downstream, towards the middle of the watershed, are large spreading grounds utilized for groundwater recharge. The watershed is hydraulically connected to the Los Angeles River through the Whittier Narrows Reservoir (normally only during high storm flows). The lower part of the river flows through a concrete-lined channel in a heavily urbanized portion of the county before becoming a soft bottom channel once again near the ocean in the city of Long Beach. Large electrical power poles line the river along the channelized portion and nurseries, small stable areas, and a large poultry farm are located in these areas.

Water Quality Objectives Not Attained

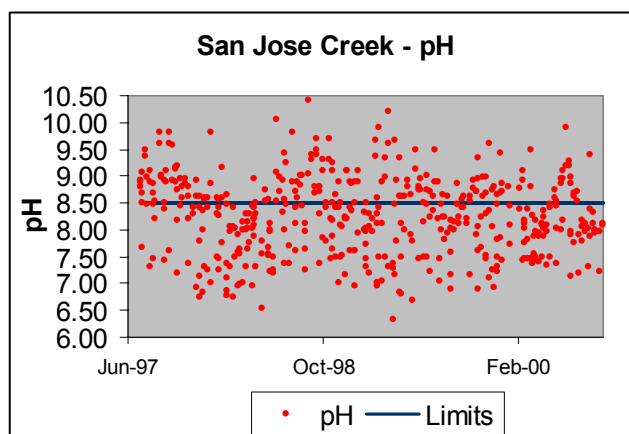
The Water Quality Control Plan for the Los Angeles Region (Basin Plan) states that, "The pH of inland surface waters shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharges." This objective was not attained in Reach 2 of the San Gabriel River as indicated by the data assessment presented below.

Beneficial Uses Affected

- Basin Plan Objective
- Aquatic Life

Data Assessment

The chart below shows that during 1997- 2000 the pH maximum of 8.5 was exceeded in 33 samples. The LARWQCB and the San Jose Creek Water Reclamation Facility collected the data analyzed in the charts primarily during dry weather.



Summary Table of pH Data

	pH
Dates of Sampling	7/10/97- 9/10/00
Number of Samples (n)	474
Minimum Data Value	6.54
Maximum Data Value	10.4
Median Data Value	8.26
Arithmetic Mean Value	8.25
Standard Deviation	0.71
Percent above Limit of 8.5	38%

Potential Sources

There are point sources discharges (POTWs) upstream of San Jose Creek in addition to nonpoint source discharge from urban runoff. The data collected was primarily from dry weather sampling events. No stormwater data was available for the assessment, thus Board staff was unable to assess the concentrations which occurs during storms.

References

- Basin Plan, 1994
- Watershed Management Initiative, 2000
- California Toxics Rule, August 2000

California Regional Water Quality Control Board, Los Angeles Region

**San Gabriel River Watershed – Coyote Creek
Total Aluminum**

Summary of Proposed Action

Coyote Creek, a tributary of the San Gabriel River, is proposed to be listed in the 2002 305(b) water quality assessment as "Fully Supporting, but Threatened" (Impaired) due to greater than 10 percent exceedance of the total aluminum primary drinking standard for protection of municipal and domestic water supply.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Coyote Creek	Pollutants/Stressors	Total Aluminum
Hydrologic Unit	405.15	Source(s)	Point and Nonpoint Sources
Total Waterbody Size	13.45 miles	TMDL Priority	39
Size Affected	13.45 miles	TMDL Start Date (Mo/Yr)	2004
Extent of Impairment	Entire Reach	TMDL End Date (Mo/Yr)	2006

Watershed Characteristics

The San Gabriel River receives drainage from a large area of eastern Los Angeles County; its headwaters originate in the San Gabriel Mountains. The watershed consists of extensive areas of undisturbed riparian and woodland habitats in its upper reaches. Much of the watershed of the West Fork and East Fork of the river is set aside as a wilderness area; other areas in the upper watershed are subject to heavy recreational use. The upper watershed also contains a series of flood control dams. Further downstream, towards the middle of the watershed, are large spreading grounds utilized for groundwater recharge. The watershed is hydraulically connected to the Los Angeles River through the Whittier Narrows Reservoir (normally only during high storm flows). The lower part of the river flows through a concrete-lined channel in a heavily urbanized portion of the county before becoming a soft bottom channel once again near the ocean in the city of Long Beach. Large electrical power poles line the river along the channeled portion and nurseries, and small stable areas.

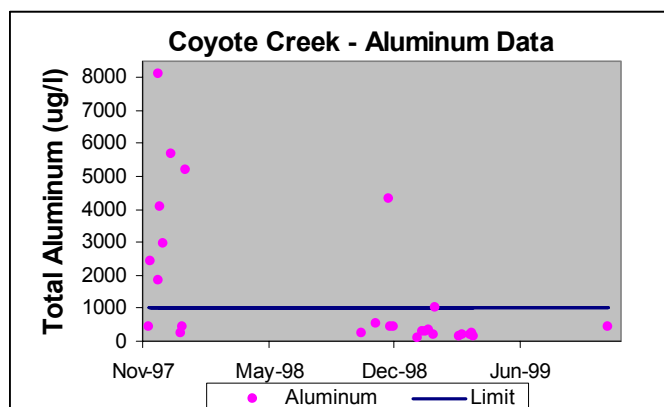
Water Quality Objectives Not Attained

Title 22 of the California Code of Regulations specifies maximum contaminant levels for drinking water supplies. These maximum contaminant levels (MCLs) are included in the Basin Plan as water quality objectives for waters designated with the MUN beneficial use. The primary MCL for aluminum is 1 mg/l. Analysis of available data determined that this limit was exceeded in 33% of the sampling events.

Beneficial Uses Affected

- Municipal and Domestic Supply

Data Assessment



Summary Table for Total Aluminum Data

	Total Aluminum ($\mu\text{g/l}$)
Dates of Sampling	11/10/97- 11/10/99
Number of Samples (n)	27
Minimum Data Value	100
Maximum Data Value	8100
Median Data Value	431
Arithmetic Mean Value	1520
Standard Deviation	2139
Percent above Standard	33 %

Potential Sources

The sampling location for the total aluminum data was the mass loading station (S13) monitored by the Los Angeles County Department of Public Works Storm Water Monitoring Program. Therefore, it is assumed that the total aluminum loading occurs during wet weather storm events. According to their land use and critical source runoff quality results, the LACDPW did identify possible sources of dissolved metals loading as light industrial, transportation, and retail/commercial land uses. According to LACDPW, the critical sources that fall into these land use categories are auto repair, motor freight transportation, and auto dealership.

References

- Basin Plan, 1994
- Watershed Management Initiative, 2000
- Los Angeles County 1994-2000 Integrated Receiving Water Impacts Report, July 2000
- California Toxics Rule, 2000

California Regional Water Quality Control Board, Los Angeles Region

**San Gabriel River Watershed – Coyote Creek
Dissolved Lead**

Summary of Proposed Action

Coyote Creek, a tributary of the San Gabriel River, is proposed to be listed in the 2002 305(b) water quality assessment as not supporting due to exceedance of the dissolved lead chronic water quality criterion for protection of fresh water aquatic life. The beneficial uses that are affected by this impairment relate to aquatic life use support and include warm freshwater habitat, wildlife habitat, and rare/endangered species habitat.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Coyote Creek	Pollutants/Stressors	Dissolved Lead
Hydrologic Unit	405.15	Source(s)	Nonpoint Sources
Total Waterbody Size	13.5	TMDL Priority	TMDL Analytical Unit 39
Size Affected	13.5 miles	TMDL Start Date (Mo/Yr)	2004
Extent of Impairment	Entire Reach	TMDL End Date (Mo/Yr)	2006

Watershed Characteristics

The San Gabriel River receives drainage from a large area of eastern Los Angeles County; its headwaters originate in the San Gabriel Mountains. The watershed consists of extensive areas of undisturbed riparian and woodland habitats in its upper reaches. Much of the watershed of the West Fork and East Fork of the river is set aside as a wilderness area; other areas in the upper watershed are subject to heavy recreational use. The upper watershed also contains a series of flood control dams. Further downstream, towards the middle of the watershed, are large spreading grounds utilized for groundwater recharge. The watershed is hydraulically connected to the Los Angeles River through the Whittier Narrows Reservoir (normally only during high storm flows). The lower part of the river flows through a concrete-lined channel in a heavily urbanized portion of the county before becoming a soft bottom channel once again near the ocean in the city of Long Beach. Large electrical power poles line the river along the channeled portion and nurseries, and small stable areas.

Water Quality Objectives Not Attained

Through the California Toxic Rule (CTR), the United States Environmental Protection Agency promulgated water quality criteria to protect fresh water aquatic life. The recommended Criteria Continuous Concentration for dissolved lead is dependent on the water hardness value. After considering the event specific hardness values, the range of CTR limits was determined to be 1.17 - 12.02 µg/l. This criterion range was exceeded in 69% of the sampling events.

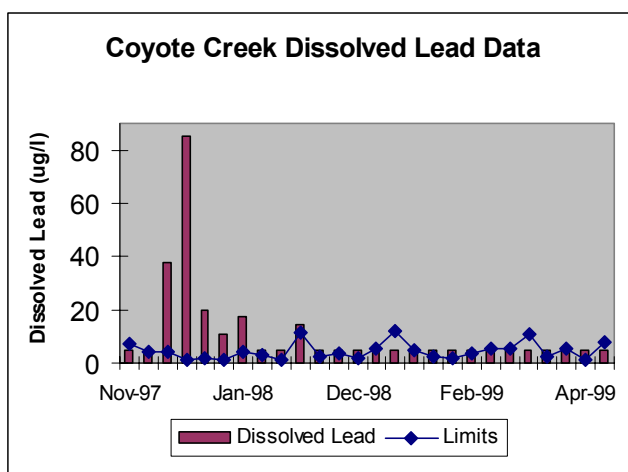
Beneficial Uses Affected

- warm freshwater habitat
- wildlife habitat
- rare/endangered species habitat

Data Assessment

In order to determine the concentration of dissolved lead that will actually be available in an aquatic environment, the water hardness must be considered. The limits calculated and presented in the chart and table below as "Limits" have had hardness values factored in to the dissolved lead concentration. In general, the lower the hardness values the higher the dissolved lead limit.

The chart below shows a distinct trend in the concentration of dissolved lead. The data analyzed in the charts was collected from a storm water monitoring program. During the November and December 1997 storm events the concentration of dissolved lead shows increasing trend, and then decreases and stabilizes during the remaining events. Possible explanations may be related to the dilution by increased rainfall-related discharge volumes, during the El Nino storms of late 1997, or related to a change in groundwater recharge and spreading volumes.



Summary Table of Dissolved Lead Data

	Dissolved Lead (µg/l)
Dates of Sampling	11/10/97- 11/10/99
Number of Samples (n)	27
Minimum Data Value	5.23
Maximum Data Value	85
Median Data Value	5
Arithmetic Mean Value	10.79
Standard Deviation	16.52
Percent above CCC	69%

Potential Sources

The sampling location for the dissolved lead data was the mass loading station (S13) monitored by the Los Angeles County Department of Public Works Storm Water Monitoring Program. Therefore, it is assumed that the dissolved lead loading occurs during wet weather storm events. According to their land use and critical source runoff quality

results, the LACDPW did identify the possible sources of dissolved metals loading as light industrial, transportation, and retail/commercial land uses. According to LACDPW, the critical sources that fall into these land use categories are auto repair, motor freight transportation, and auto dealership.

References

- Basin Plan, 1994
- Watershed Management Initiative, 2000
- Los Angeles County 1994-2000 Integrated Receiving Water Impacts Report, July 2000
- California Toxics Rule, August 2000